SACO RIVER
CORRIDOR MANAGEMENT PLAN

Saco River Local Management Advisory Committee

**Nat Lucy, Sarah Kimball, Keith Pratt,
Thomas Caughey, Thomas Daley, Carl Gebhardt,
Brian Hill, George Howard, Bill King,
Jeff Lathrop, Ned McSherry, Paul Schurman**

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TABLE OF CONTENTS

SACO RIVER CORRIDOR MANAGEMENT PLAN
MATRIX OF EXISTING REGULATIONS

TOPIC	FEDERAL	STATE	CONWAY	BARTLETT	HARTS LOCATION	WMNF
I. **Water quality**	**Clean Water Act: 1972 (33 U.S.C. 1251 - 1376)** Restore & maintain the chemical, biological and physical integrity of the U.S. waters.	**RSA 483:9** Water quality shall be maintained at class A or B for rivers designated as "natural" or "rural". **Env-Ws 430:** Surface water quality standards **Env-Ws 410:** Ground water protection rules **Env-Wt 100-800:** Wetlands Board rules **Env-Ws 437:** Protection of surface waters from degradation by pollutant discharge.		**Zoning IV** No activity that adversely threatens the quality, purity or permanency of any watercourse shall be permitted.		
I A. **Sources of erosion and sedimentation**	**Soil Conservation Act (16 U.S.C. 590a)** Directs US Soil Conservation Service to prevent soil erosion through local regulations and watershed	**RSA 485-A:17** Alteration of terrain permit, required for major earth disturbance. **Env-Ws 415:** Rules governing alteration of				

	improvement projects.	terrain (site specific) permits				
I A1. **Timber harvesting practices**		**RSA 224:44a** No more than 50% of the basal area of trees shall be cut, leaving a well distributed stand of healthy growing trees within 150 feet of any navigable river, or within 50 feet of any other stream which normally flows throughout the year, unless the timber cutting is for converting the use of the land and all necessary state and local permits have been secured. **RSA 485-A:17** Best Management Practices required in timber harvesting. **RSA 482-A:3V**Forest Management limited to				-As a minimum retain at least 50% of basal area within 150 feet of a stream leaving uncut a well distributed stand of trees. -Limit amount of exposed soil to less than 5% of riparian area. -Locate landings a minimum distance of 100 feet from stream. -Avoid skidding within 100 feet of stream or limit to frozen ground conditions.

		minimum impact activities.				
I A 2. **Road, bridge and building construction**	**Rivers & Harbors Act of 1899: Section 404 of Clean Water Act:** Need federal permit to construct dams, bridges, piers, etc, in any navigable water.	**RSA 482-A:3** Construction of structures in or adjacent to wetlands or surface water require wetlands board permit.	**Zoning 147.14 D** Roads, bridges, utility lines, etc., are permitted in the Floodplain District by special exception.	**Floodplain Development Ordinance VII** No encroachment (fill, construction, etc.) permitted in Regulatory Floodway that would increase flood levels.		-Attempt to locate roads outside of riparian area. -Align stream crossings so that the minimal possible area is disturbed. -Locate crossings in areas that are stable, have good flood carrying capacity and have flat approaches. -Ditches should be designed to drain into areas suitable for trapping sediment and not directly into the stream. -Temporary stream crossings will be located and designed to handle at least a 10-year flood. -Bridges or culverts will be used whenever roads or skid trails cross live streams or streambeds

						that receive heavy spring or storm run-off. -During culvert and abutment installation, the site should be isolated from streamflow. Construction debris and excess material disposal areas will be located outside of riparian areas.
I A 3. **Land tilling near the river**						
I A 4. **Dredge and fill activities**	**Clean Water Act Section 404:** Establishes permit system for dredge and fill activities in navigable waterways.	**RSA 485-A:17** A permit is required for any terrain alteration in or on border of surface waters or which will alter natural runoff. **RSA 482-A:3** Permit from wetlands board required for excavation, dredge, fill or construction in or on any banks, flat, marsh or swamp in and adjacent to any waters of the state.	**Zoning 147.14 D.1.f** Fill allowed in floodplain by special exception if beneficial purpose can be demonstrated. **Zoning 147.14 E.10** No excavation in the Floodplain Conservation District. **Subdivision Reg 131.40 C** Proposals to alter or relocate watercourses require notification of	**Floodplain Development Ordinance VII** No encroachment (fill, construction, etc.) permitted in Regulatory Floodway that would increase flood levels.		

		RSA 483:9 No channel alteration activities shall be allowed in rivers designated as "natural".	N.H. Office of State Planning and Wetlands Board as well as copies to adjacent communities.			
I A 5. **Borrow pits, sand & gravel operations, removal of material from the corridor**		**RSA 155-E** No excavations within 75 feet of any navigable river or within 25 feet of any other stream which normally flows throughout the year.	**Zoning 147.14 D** Limited agricultural extraction for noncommercial use is allowed in flood plain conservation district by special exception.	Town has adopted RSA 155-E as town regulations.		Heavily disturbed areas such as Borrow pits will be restored and restablized.
I B. **Septic systems**		**RSA 485A:29** Permit is required before system construction, inspection required before system covered or used. **Env-Ws 1000:** Individual sewage disposal system design rules. **Env-Ws 700:** Sewerage and waste treatment system design standards.	**Zoning 147.14 E.1** No new septic systems in floodplain. **Zoning 147.14 D.2 b** Replacement systems must be designed to minimize infiltration of floodwaters.	**Floodplain Development Ordinance IV** On-site waste disposal systems shall be designed and located to avoid impairment or infiltration to them from floodwaters, or contamination from them to floodwaters.	**Land Use Ordinance III.6** Septic systems shall be constructed in accordance with standards set by NH Dept. of Health and NH Dept. of Environmental Services.	Leach fields will employ the best available technology to protect ground water quality.

I B 1. **Set backs for septic systems**		**Env-Ws1008.03** Sewage disposal systems shall be at least 75 feet from surface water. Locate septic system no closer than 125 feet from wetlands or water course.				
I B 2. **Septage disposal**		**Env-Ws 800:** Regulations for removal transportation, and disposal of septage and sludge.				
I C. **Pollution from agricultural, residential, municipal and industrial sources**		**RSA 485-A:** Water pollution and waste disposal regulations.				
I C 1. **Pesticides and fertilizers**		**RSA 430:** All pesticide applications must comply with rules adopted by Pesticides Control Board, NH Dept. of Agriculture.				Only EPA approved pesticides will be used according to label directions.

I C 2. **Manure spreading**		**RSA 431:33-35** Manure and chemical fertilizer handling must be done in accordance with NH Dept. of Agriculture Best Management Practices.				
I C 3. **Storage facilities for petroleum &/ or hazardous materials (under and above ground)**		**Env-Ws 411:** Rules for underground storage and handling of oil & petroleum liquids.				Fuel storage facilities will employ the best available technology to protect ground water quality.
I C 4. **Road salt**		**RSA 485-C:11** Outdoor storage of road deicing chemicals is prohibited in designated wellhead protection areas.				
I C 5. **Disposal of plowed snow**		**RSA 485-C:11** Snow dumps are prohibited in designated wellhead protection areas.				
I C 6. **Runoff from roads & parking lots; use of catch basins for dumping**		**RSA 485-A:17** Alteration of terrain permit requirements include practices to mitigate the affects of urban runoff.				Revegetate ditches following ditch restoration.

I C 7. **Landfills; solid waste disposal, recycling depots; oil-collecting tanks**		**Env-Wm 1901** Solid Waste Management Rules **RSA 483:9** No new solid waste landfills in corridor of designated "natural" river or within 500 year flood plain of "rural" river. No expansion of existing landfills within 500 yr flood plain of designated "natural" river. Land application of solid waste to be incorporated into soil and set back at least 250 feet from high water mark of designated "natural" or "rural" river.				-All solid waste generated on, or deposited on the WMNF will be disposed of through community or area-wide solid waste disposal systems. -Landfills will employ the best available technology to protect ground water.
I C 8. **Timber operations - slash & mill waste**		**RSA 485-A:151** Litter (garbage, scrap metal, old cars, trees, etc.) shall not be disposed of in, on the ice over, or on the banks of surface waters. **RSA**				Slash will not be left in any designated stream course.

		224:446 No disposal of slash & mill waste within 50 feet of any navigable river, within 25 feet of any stream which will float a canoe at normal water level or in any stream which normally flows throughout the year.				
I D. **Water quantity, including water withdrawals**	**Federal Power Act (16 U.S.C. 791-)** Every hydroelectric project on a navigable stream requires a Federal Energy Regulatory Commission permit.	**RSA 483:9** No dams or interbasin transfers are allowed and a protected instream flow level shall be established for each river designated as "natural" or "rural." **Env-Wr 700:** Water uses over 20,000 gpd must be registered and report usage.				Water withdrawals projects must insure that flows in all perennial streams will be maintained at levels which will protect spawning and nursery habitat for all native fish including Atlantic Salmon.
I I. **Scenic Appearance**						
I I A. **Open space management**						
I I B. **Riparian buffer zones**			**Zoning 147.14** Floodplain Conservation District			

II B 1. **Setbacks for buildings and roads**		**RSA 482-A:26** No structure extending beyond the shoreline of public water may be used as a dwelling.	**Zoning 147.14 C** No structures in the Floodplain District. **Zoning 147.17 C** 75' from mean high water of all permanent streams.	**Zoning XI D** Minimum setback for buildings or structures is 20 feet from normal high water mark.		
II B 2. **Permitted uses**			**Zoning 147.14 C** Agricultural uses, residential accessory uses & sealed public water supplies permitted.			
II B 3. **Lot sizes and river frontage**			**Zoning 147.17.1 C** 150' water frontage per dwelling unit.	**Zoning VI** Minimum lot sizes depend on slope and soil type.	**Land Use Ordinance IV.1** Minimum lot size 1.5 acres. Buildings no closer than 25 feet to any property line.	
II B 4. **Building heights**			**Zoning 147.17.2** Maximum building height of 45 feet.	**Zoning V** Maximum building height of 38 feet.	**Land Use Ordinance IV.2** Maximum building height of 2.5 stories or 40 feet.	

II B 5. **Mobile home regulations**		**RSA 674:32** Manufactured housing can be regulated but not completely excluded from a municipality.	**Zoning 147.18** Mobile home regulations	**Floodplain Development Ordinance VIII.2.C** The lowest floor of all manufactures homes in special flood hazard areas shall be elevated above the base flood level and securely anchored.	**Land Use Ordinance IV.4** Mobile homes may be located in Harts Location for a period in excess of 30 days only by special exception from the Board of Adjustment.	
II B 6. **Junk yard restrictions**		**RSA 236:111-129** Junk yard regulations.			**Land Use Ordinance III.2** No junk yards allowed.	
II C. **Location of roads and parking lots**				**Floodplain Development Ordinance VII** No encroachment (fill, construction, etc.) permitted in Regulatory Floodway that would increase flood levels.		-Roads, trails, and new recreation sites will be located to avoid impacts to lakes and streams. -Attempt to locate roads outside of riparian areas. Width of riparian areas will be at least 100 feet.
II D. **Building material choices**						

II E. **Timber operations-cutting for views**						Existing vistas will be scheduled for regular maintenance. Riparian vegetation management will be compatible with visual quality objectives.
II F. **Signs**			**Zoning 147.19** All regulations apply.	**Zoning XVI** Regulations pertaining to signs	**Land Use Ordinance III.3** Maximum area of signs of 32 sq. feet. Signs must be placed at site of enterprise only.	
III. **Recreation**						
III A. **Water sports**		**RSA 482-A:3** Wetlands board permit required for dock construction. **RSA 483:9** No motorized watercraft on designated "Natural" river. On other designated rivers, headway speed only within 150 feet of shore.	**Zoning 147.14 D** Boat landings & access areas permitted in floodway by special exception.			Access to rivers is an accepted recreation use. Access may be limited to protect the riparian environment. River use will be monitored and guidelines, including limits on use, may be established to manage use on individual rivers. Applications for commercial use of river access will be considered on a case by case basis.

III B. **Camping**						Restricted use area regulations prohibit camping outside of developed campgrounds within one-quarter mile of the Kancamagus Highway and Bear Notch Road.
III C. **Trail networking**		**RSA 215-A**Off Highway Recreation Vehicle regulations				-Roads, trails, and developed recreation sites generally will be located to avoid unique areas sensitive to heavy use, as well as streams and lakes. -Recreation motor vehicle use will be permitted only on designated trails; off-trail cross country use is prohibited.
III D. **Barrier-free access**						Barrier free designs will be considered during planning for all new construction, reconstruction projects. All facilities within a site will be evaluated for the needs of the handicapped.

IV. **Wildlife and Fisheries**	**Dept. of Transportation Act of 1966: (49 U.S.C. 1651 - 59, Section 4 (f))** No U.S. Dept. Transportation projects are allowed on public land important for wildlife, recreation or historic properties unless there is no prudent and feasible alternative. **Fish and Wildlife Coordination Act: (16 U.S.C. 661 -661c)** Whenever a river is altered by a water resource development project, steps should be taken to conserve wildlife resources.					
IV A. **Wildlife**						Habitat will be managed throughout the forest to maintain viable populations of all existing native and non-native fish and wildlife. Introduction of non-native wildlife species will be

						considered on a case by case basis, and carried out only if the State of NH agrees.
IV B. **Fisheries**						-Fish passage in streams will not be blocked. -Streams which are identified as Atlantic Salmon habitat will be managed to provide diverse habitat for all species. -Habitat restoration and enhancement projects will be planned where existing Atlantic Salmon spawning, rearing, and overwinter habitat is below its productive potential. -Habitat restoration and enhancement projects will only be considered where channels are stable. Emphasis will be on use of native materials, and

						structural restoration and enhancement techniques will meet visual quality objectives. Disturbances will be kept to a minimum so as to maintain federal and state water quality standards. Work within flood plains will be accomplished in compliance with NEPA and Clean Water Act, and applicable state permits (RSA 483-A). -Quality of fish habitat which is capable of supporting trout populations will be maintained. -Trout stocking will be done in cooperation with NH Fish and Game to produce a sustained fishery resource in accessible areas. Stocking will be directed towards producing recreational opportunities in areas with

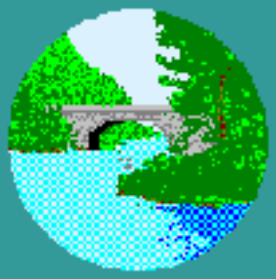
						high use ratio and when natural production cannot sustain the fishery.
V. **Unique natural communities; threatened and endangered species**	**Endangered Species Act (16 U.S.C. 1531-43)**	**RSA 212:A** Endangered Species Conservation Act **RSA 217-A** NH Native Plant Protection Act **Res - N 100-300** Administrative rules governing plant protection.				-Protect and/or enhance habitat of T-E and sensitive species. - Management activities will be conducted in a manner that will avoid either disturbance conflicts, or habitat deterioration, or loss of habitat for T-E species. New recreation facilities will generally avoid sensitive habitat. Roads, trails, and facilities can be temporarily closed to avoid disturbing T-E and sensitive species during breeding or young rearing seasons or at other times if the need is critical to the survival of this species.
VI. **Historical & archaeological features**						

VI A. **Historical Sites**	**National Register of Historic Places**	**RSA 227-C** Governs identification and protection of state historic resources and properties.				-Cultural resources surveys will be conducted by trained personnel prior to all earth disturbing activities. -Activities will be designed to avoid, minimize or mitigate adverse effects. -All cultural resource sites will be protected until they have been evaluated for potential inclusion in the national register of historic places. -National register sites and non-eligible sites chosen for enhancement and interpretation will be afforded protection as necessary.

VI B. **Archaeological sites - Indian artifacts**						-Archaeological testing will be permitted by qualified archaeologists. -Artifacts will be cataloged and made available for research and interpretation to qualified professionals.

Top of Page
Back to Contents
Rivers Home

SACO RIVER
CORRIDOR MANAGEMENT PLAN



Back to Contents
Rivers Home

RESOURCE ASSESSMENT

Location and Description

The Saco River is located in east central New Hampshire and southwestern Maine. It originates in Saco Lake (elevation 1887'), in the town of Carroll, at the head of Crawford Notch in the White Mountains. Flowing down through Crawford Notch, it passes through the towns of Harts Location, Bartlett and Conway, before it enters Maine at Fryeburg (elevation 395'). Major tributaries joining the Saco River in New Hampshire are Dry River, Sawyer River, Rocky Branch, the Ellis River, the East Branch of the Saco and the Swift River. Another major tributary, the Ossipee River, originates in New Hampshire and then flows into Maine before joining the Saco River.

Below Saco Lake, the Saco River flows a short distance through a wet area before it enters Harts Location. The river travels 12 miles through Harts Location and drops about 1150 feet in elevation. Then in Bartlett, the Saco River drops 250 feet in a little over 11 miles. As the river travels the 16 miles through Conway to the Maine border, it drops about 90 feet. The drainage basin of the Saco River upstream from the New Hampshire-Maine border is approximately 427 square miles, of which 80% is within the White Mountain National Forest. (NHWSPPC, 1979)

Geological Resources

The headwaters of the Saco River are in the White Mountains. The rugged terrain of this region has been extensively eroded by glaciation and is characterized by steep mountain ridges separated by deeply cut valleys. The highest point in the watershed is Mt. Washington, rising 6,288 feet above sea level. Below Bartlett, the Saco River valley widens into a flat plain and the river meanders between steep hills. Below the New Hampshire-Maine border, the Saco River flows through

the Seaboard Lowlands, characterized by broad flat plains and rolling hills. The Saco River empties into the Atlantic Ocean at Biddeford-Saco, Maine. (NERBC, 1980)

The surficial geology of the basin consists of silt, sand, and gravel of glacial origin. The glacial till is generally thick in the valleys, but thins out on the upper slopes to expose the underlying bedrock on the steep hills and mountain tops. The bedrock in the area consists of granite, gneiss and schists. In the broader valleys many ponds and swamps have formed in glacial depressions. (Sillas, 1984)

In Harts Location the Saco River flows through Crawford Notch, a spectacular, narrow, steep-sided valley with exposed rock cliffs. The upper portion of the Saco River is characterized by fast-moving water over rocks and boulders with frequent cascades. In Crawford Notch, near the mouth of Nancy Brook, the river has cut a narrow, steep-sided gorge into the bedrock forming a short turbulent waterfall. Many of the tributaries of the Saco River in Crawford Notch have waterfalls or cascades: the Flume Cascade and the Silver Cascade at the head of the Notch, Ripley Falls on Avalanche Brook, Arethusa Falls on Bemis Brook, and Nancy Cascades on Nancy Brook. Lucy Brook, a tributary of the Saco River which flows through Bartlett and Conway, has carved smooth channels through bedrock ledges to form what is known as Diana's Baths. Other unique geological features adjacent to the rivers are a number of steep, sheer cliffs such as Frankenstein Cliffs, Humphrey's Ledge, Cathedral Ledge, and White Horse Ledge.

Natural Flow Characteristics

Precipitation in the Saco River watershed is distributed fairly uniformly throughout the year. The average annual precipitation ranges from 76 inches on the summit of Mt. Washington to about 45 inches near the New Hampshire-Maine border. Because precipitation during the winter months occurs as snow and is stored until spring, runoff does not occur evenly. About 50% of the basin's runoff occurs in March, April, and May, when melting snow combines with heavy rains. In fact, 10 of the 14 largest basin-wide floods have occurred in the spring. The average discharge of the Saco River at the USGS gaging station near North Conway, NH is 33 inches per year (934 cubic feet per second). The maximum discharge of 43,900 cubic feet per second occurred in March, 1953 and the minimum discharge of 40 cubic feet per second

occurred in March 1932 (Johnson et al., 1987).

Forest Resources

Of the 552,320 acres of the Saco River watershed that lie within New Hampshire, 89% are covered with forests. The White Mountain National Forest is the largest forestland owner with 45% of the forestlands. Forest types found within the Saco River basin include 1) beech/birch/maple, 2) spruce/fir, 3) oak/white pine/hemlock, 4) elm/ash/red maple, 5) aspen/gray birch, and 6) pitch pine. More than 50% of the forestland is currently held for aesthetic, recreational or residential use, which will most likely continue to be the most important use in the future. (Saco River Basin USDA Cooperative Study, l983c)

Forestland helps to enhance good water quality in the rivers by retaining precipitation, controlling runoff, preventing erosion, and maintaining an adequate water table. Shade provided by forests functions to keep water temperatures lower. The fact that such a large portion of the Saco River watershed is within the White Mountain National Forest gives some assurance of protection of the Saco River's present high water quality.

Forestland contributes to the economy of the region by providing pulpwood for paper, saw timber for lumber and mill wood for finished items. But the most significant contribution that forestland makes to the local tourist-based economy is in the recreational opportunities it provides. The White Mountain National Forest is probably one of the most heavily used national forests for recreational pursuits.

Wetlands

Wetlands are those areas where the presence of water, at or near the surface of the soil, is a dominant factor controlling the types of plant and animal life occurring there. Among the beneficial functions of wetlands are the absorption of precipitation, reducing the chance of flooding and recharging groundwater supplies, the removal of certain pollutants from the water, and as important wildlife habitat, especially for waterfowl.

The U.S Fish and Wildlife Service conducted a National Wetlands Inventory in 1975 to establish a data base covering the current status of the nation's wetlands. The types of wetlands present in the New Hampshire portion of the Saco River watershed were classified as Riverine (streams and rivers), Lacustrine (lakes) and Palustrine (freshwater wetlands dominated by trees, shrubs and persistent emergent plants). Of the total acreage of the towns along the Saco and Swift Rivers, approximately 4% is classified as wetland, with over half of the wetland area being of the palustrine type. (Saco River Basin USDA Cooperative Study, 1983a)

The soils maps in the Soil Survey of Carroll County (USDA, 1977) show a number of small areas of wetland soils adjacent to the Saco River. One group of alluvial wet soils is located along the river in Harts Location, and another group is just upstream from Bartlett village. In the broad intervale that runs from Glen to the Maine border, there are scattered small wetland areas in the floodplain, especially along small tributaries and old river channels of the Saco River.

Wildlife Resources

According to the literature review conducted by the Saco River Basin USDA Cooperative Study (1983a), there are 36 species of fish, 32 species of amphibians and reptiles, 165 species of birds, and 56 species of mammals using the various habitats which occur in the Saco River watershed. Because the dominant habitat type found in the Saco River watershed is forestland (89%), the most common species occurring would be those which can utilize the forest habitat. With a large portion of the watershed being within the White Mountain National Forest, the continued presence of forest habitat of sufficient size to support stable populations of most of the existing forest species can be assured.

Habitats other than forestland occurring within the Saco River watershed include open fields, tilled land and urban land. Current trends would indicate that the most likely habitat change in the future would be an increase in the amount of urban land. Though there are some wildlife species which can utilize urbanized land, they are usually much smaller in number than those species which are displaced when land becomes urbanized. Because most of the urban growth and

residential development is located in the valleys, a larger proportion of the wildlife habitat being lost to urbanization is occurring near the rivers.

Threatened and Endangered Species

Included in the list of species compiled by the Saco River Basin USDA Cooperative Study (1983a) are 13 endangered or threatened species. Section 1532(6) of the Endangered Species Act of 1973 defines an endangered species as: any species which is in danger of extinction throughout all or a significant portion of its range. Section 1532(20) defines threatened species as: any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The endangered and threatened species in the New Hampshire portion of the Saco River watershed are 4 endangered bird species (Pied-Billed Grebe, Common Tern, Sedge Wren, Loggerhead Shrike), 7 threatened bird species (Common Loon, Cooper's Hawk, Northern Harrier, Osprey, Arctic Tern, Common Nighthawk, Purple Martin), 1 endangered mammal (Canada Lynx), and 1 threatened mammal (Martin). In addition, the peregrine falcon is currently known to be nesting on Cathedral Ledge in Bartlett, Frankenstein Cliff and Mt. Willard in Hart's Location. These fourteen species were also included on a list of species compiled by the New Hampshire Audubon Society and the New Hampshire Fish and Game Dept. for inclusion under RSA 212-A, and Administrative Rules FIS 1000 passed in 1987 for the conservation of endangered species.

The New Hampshire Natural Heritage Inventory (letter of October 22, 1993) lists 22 rare species of plants and animals, and 4 exemplary natural communities as occurring in 25 locations in the vicinity of the Saco River. Eleven of the locations are on the floodplain near the river while the other 14 locations are on the cliffs overlooking the river.

The New England Riverwash Hudsonia Barren is an exemplary natural community found on intermittently flooded sand and gravel bars in five locations along the Saco River in Conway and Bartlett. This community is characterized by the presence of the hairy hudsonia, ***Hudsonia tomentosa***, a low, heath-like shrub, and the White Mountain silverling, ***Paronychia argyrocoma*** var. ***albimontana***, a small perennial herb. Both species are listed as threatened in the state because of their few known locations and the extreme vulnerability of

their habitat to wind and water erosion.

Another species listed by the state as threatened, is the green adder's-mouth, ***Malaxis unifolia***, which has been found near the river in Intervale. The inflated sedge, ***Carex bullata***, listed by the state as endangered, occurs near Saco Lake at the headwaters of the Saco River. Two other rare species, the northern water-starwort, ***Callitriche anceps***, and the square-stem goldenrod, ***Solidago patula***, have been observed in the past near the Saco River.

Examples of three exemplary natural communities occur on the southern slope of Mt. Stanton in Bartlett: the northern New England circumneutral talus forest/woodland, the northern New England circumneutral cliff community, and the red pine forest/woodland. Located here or on other slopes or ledges near the Saco River are 6 species listed as endangered plants and 7 species listed as threatened plants by the state.

Fish Resources

The Saco River and its tributaries are trout streams. The cold, clear, fast-moving water between Crawford Notch and Conway was once recognized as being one of the premier brook trout streams in the Northeast. Heavy fishing pressure and changing land uses eventually led to a decline in the fishery. Today the Saco valley supports only a low density of fish. The New Hampshire Department of Fish and Game and the local chapter of Trout Unlimited carry out a low-level stocking program each year to provide anglers with the opportunity for catching brook, brown and rainbow trout.

There are no anadromous fish runs on the Saco River into New Hampshire, because of the numerous dams on the river in Maine. With considerable good habitat for salmon spawning in the New Hampshire portion of the river, the potential exists for reestablishing the salmon runs if the barriers presented by the dams can be overcome. There is interest in setting up a salmon restoration program for the Saco River, but it would require considerable effort and coordination between the states to be successful.

Water Quality

The water quality of the Saco River is generally good to excellent. The main stem of the Saco River is classified as Class B water, while the upper portions of a number of its tributaries are classified as Class A water. These tributaries include Albany Brook, Bartlett Brook, Meserve Brook, the East Branch of the Saco, Kearsarge Brook, Hurricane Mountain Brook, and Artist Falls Brook. A classification of Class A or B means that the water is acceptable for swimming, fish habitat, and, after adequate treatment, for drinking water supplies. Of all the river basins evaluated by the NH Water Supply and Pollution Control Division, the Saco River Basin is the only basin in which all of the surface waters meet the goals of the Clean Water Act (Flanders, 1988).

There is little or no documented evidence of any significant non-point source pollution of the Saco River from agricultural or forestry activities. Because cropland represents less than 1% of the basin area and erosion rates are relatively low, the potential for cropland erosion as a source of pollution is considered to be minimal. The small percentage of cropland also indicates that the threat of pollution due to agricultural chemicals should be low. Animal waste is not considered to pose a pollution threat because of the relatively small number of farm animals. With the types of forestry practices used and the pattern of ownership of forest land in the basin, it is unlikely that forestry-related water pollution will become significant. (Saco River Basin USDA Cooperative Study, 1983)

Another potential source of pollution would be erosion and sedimentation from construction sites. During the 1980s, the Mt. Washington Valley region experienced rapid growth in tourism, which resulted in the construction of a large number of vacation homes. Many of these residential developments are located near the Saco River and its tributaries. As long as there is vigilance on the part of the state and local authorities to ensure that the developers adhere to effective erosion control practices, pollution from residential construction can be expected to be minimal.

Compounds used for road de-icing in the winter are a potential water quality threat. Major road construction adjacent to the river would only increase the threat of pollution. Practices such as dumping snow plowed from town streets and sidewalks on the river banks, or the

application of de-icing compounds to storm drains which flow directly into the river could cause a degradation in water quality. Regular water quality monitoring would be necessary to identify any pollution problems.

Impoundments, Water Withdrawals and Discharges

The Saco River is essentially free-flowing within New Hampshire. Although there are eleven dams on the main stem of the Saco River in Maine, there are only two minor dams on the main stem of the Saco River in New Hampshire. A small dam maintains the level of Saco Lake (approximately 6 acres in size) at the head of the Saco River. About four miles downstream a small dam forms a half acre pond at the Willey House in Crawford Notch State Park. This pond is often drained at the end of the summer.

Although none of the towns along the main stem of the Saco River withdraw water directly from the river for public water supply, water is withdrawn from the large groundwater aquifer associated with the river by numerous domestic, community and municipal wells. Two towns draw water from tributaries to the Saco River. The intake for the Jackson Water Precinct is in a sand filter beneath the Ellis River. The Upper Bartlett Water Precinct uses a small reservoir on Albany Brook in Bartlett as its water source. Wells adjacent to the Saco River serve as water sources for the Lower Bartlett Water Precinct, the North Conway Water Precinct, and the Conway Water Precinct, as well as the Attitash Ski Area and a number of residential developments.

The National Pollutant Discharge Elimination System (NPDES) requires that all dischargers have a NPDES permit. The two dischargers within the Saco River basin with NPDES permits are the Conway Village Fire District wastewater treatment facility and the White Mountain Laundry in North Conway. Both dischargers are in compliance with their water quality management plans, and are not degrading the water quality of the receiving waters below their established classification (R. Flanders, per. comm.).

Land Use

The predominant use of the land along the upper portion of the Saco River and within its watershed is forestland. Most of the mountainous terrain in the upper reaches of the watershed is within the White Mountain National Forest. In Harts Location the Saco River flows through the narrow valley of Crawford Notch. The majority of the corridor is in either Crawford Notch State Park or the White Mountain National Forest. The private land in Harts Location is either undeveloped or contains widely scattered buildings. Harts Location has no organized village center. Because of the narrowness of the valley in Crawford Notch, the Saco River at times runs close to and is crossed by both the railroad and Route 302. However, a vegetative buffer exists along the river allowing the character of the river corridor to remain natural and undeveloped.

In the intervale areas of Bartlett and Conway, the fertile floodplains are used for agricultural purposes, such as cropland, hayfields, and pastures. Seven to eight percent of the land area of the towns of Bartlett and Conway are presently in agricultural use. The village centers of Bartlett, North Conway, and Conway are located near, but not centered on the Saco River. The land use in these areas is a mixture of agriculture and low density residential. Because of the relatively low population, the land near the river does not have a highly developed appearance. According to the 1990 census, the combined permanent populations of the NH towns along the Saco River was just over 10,000 in 1990.

Due to the rugged terrain in most of the New Hampshire portion of the Saco River watershed, there is no heavy industry in the river valley. During the late 19th and early 20th centuries, logging was a major industry in the region, and the Saco River was used for log drives to the mills downstream. However, due to the lack of holding dams and the unpredictability of high water, the log drives were soon abandoned.

Frequent flooding of the broader intervales in Bartlett and Conway is a source of fertile soil. Agricultural activities have been and will continue to be the most productive use of these floodplain areas.

Roads, Railroads, Bridges and Rip-raps

Just below Saco Lake at the head of Crawford Notch, the Saco flows

through a conduit under Route 302. Within Crawford Notch, Route 302 parallels the Saco River and crosses it on bridges three times. In Bartlett village, there is a bridge where River Road crosses the Saco River. Route 302 crosses the Saco River again in Glen, just north of its junction with West Side Road, with a steel and concrete bridge. The old covered bridge still stands beside its replacement. In North Conway, River Road requires three bridges to cross the Saco River, one for each of the three channels at that point. Between Bartlett and Conway Route 302-16 parallels the Saco River on the east, while West Side Road follows the river on the west. There is a covered bridge crossing the Saco River north of Conway village, and a steel and concrete bridge where Route 16 crosses. Between Conway village and Center Conway, Route 302 crosses the Saco River one more time before the New Hampshire-Maine border. Along this last section of river, Route 302 is to the south of the river, while the East Conway Road parallels the river to the north.

Railroad tracks parallel the Saco River for most of its length in New Hampshire. At present the only rail traffic is the Conway Scenic Railroad which runs between Conway and North Conway as a tourist attraction during the warm months. There are five railroad bridges across the Saco River: between Sawyer River and Sawyer Rock; below Sawyer Rock; just downstream from the confluence of the Saco River with Rocky Branch; between North Conway and Conway; and just before Center Conway.

There are two federally-funded rip-raps in Conway. One was constructed in 1973, just upstream from First Bridge in North Conway to protect the bridge. The other was built in 1972 in East Conway to prevent possible rechanneling of the river which would endanger several hundred acres of farmland (Saco River Steering Committee, 1975).

In the late 1970s, another rip-rap was constructed, using private funds, on the northerly side of the North Conway Country Club to protect the golf course. Though none of these structures have failed, they have required minor repairs from time to time. A fourth rip-rap, north of Conway village opposite Importech on Route 16, was created as a disposal site for the discarded concrete deck of the Conway bridge when it was redecked in the early 1980s.

The Soil Conservation Service constructed 500 feet of rip-rap at the confluence of the Swift and Saco Rivers in 1991. This project was

financed by federal emergency funds made available following Hurricane Bob in August, 1991. During this storm 5 - 10 feet of banking, up to 38 feet high, broke away, endangering three homes.

There have been several small rip-raps installed in the past by private landowners, but local ordinances and controls have curtailed that practice considerably.

Solid Waste and Sewage Treatment Facilities

The US Forest Service maintains a small sewage treatment facility on Forest Service land south of Sawyer River in Harts Location. The facility is used to treat sewage from the Forest Service campgrounds in the area. The Bartlett sanitary landfill is located at the edge of the floodplain near Rogers Crossing in Bartlett. Because the landfill is full, no more waste is being added. However, no action has been taken or is presently being planned to cover or seal off the landfill. A transfer station has been built in conjunction with the town of Jackson where the solid waste from both towns is collected prior to trucking to a landfill in another town. The Conway sewage treatment plant is located south of the river to the east of the town of Conway. The Conway landfill is located between the river and East Conway Road.

The North Conway Water Precinct has purchased property adjacent to the Saco River where it plans to construct a sewage treatment plant. As soon as sufficient funding has been procured, construction will begin. The effluent from the plant will be discharged into rapid infiltration basins, allowing it to be filtered by the ground before it reaches the river.

Historical and Archaeological Resources

The Saco River valley has a diverse cultural heritage. The valley was utilized by early native American peoples such as the Abenaki Nation. As early as 1642 the Sokoki band was known to have had a sizable village at what is now Glen, NH. In 1672 a settlement containing 200 wigwams was reported at what is presently Conway, NH (Harp, 1977). Archaeological excavations in 1987 confirmed the presence of native American activity in the Swift River valley near the Kennison Farm.

Major Indian trails were also known to have existed along the Saco River. Because of this, the potential exists for further archaeological discoveries of the remains of native American encampments all along the Saco River.

A major exploration of the Saco River valley occurred in 1725. By 1760 Indian presence in this area had diminished. Conway was incorporated in 1765 and by 1777 had grown to a population of 273 people (Pendery and Wallace, 1979).

By the early 1800s small farmsteads dotted the valley particularly in lowland areas along the Saco River. Numerous stone fences, dug wells, cellar holes, and the famous paddleford style covered bridges, stand as a testimony to the industrious nature of these early pioneers.

The Willey House in Crawford Notch State Park is a reminder of the history of the early settlers of the White Mountains. The hardships these people had to overcome to survive is evident in the rugged terrain. Near the head of Crawford Notch the slope is so steep that the railroad had to be built on a tall trestle to reach the height of the notch. Though this portion of the railroad is not being used at the present time, it still remains and reminds visitors of the courage and persistence of the early inhabitants of the area.

Picturesque scenery, outstanding trout fishing, and an extensive network of foot trails going up all major tributaries of the Saco River began to attract numerous tourists into the valley as early as the mid-19th century. Large hotels and summer residences, including a number of architecturally significant buildings, were constructed during this resort era.

The Conway Scenic Railroad, running between North Conway and Conway, is a reminder of the area's rich railroad and logging history. Rail lines were built and operated throughout the valley from the 1870s through the turn of the century. Numerous logging camps were constructed throughout the period along all major tributaries to the Saco River. Today many of the area's popular roads and trails, including the Kancamagus Highway, reside on former railroad beds. In 1911, the White Mountain National Forest was established, thereby bringing about the gradual demise of the excessive logging practices of that time.

Community Resources

The towns along the Saco River in New Hampshire are considered to be part of the region known as the Mt. Washington Valley. The main industry of this region is tourism. In winter, the major attraction is skiing, at the downhill ski areas as well as the cross-country touring centers. During the non-snow seasons, the recreational pursuits of the tourists are more diverse, and include canoeing, fishing, hiking, camping, swimming, and sight-seeing, all which occur in the river or the river valley.

Many people attracted to the region decide to purchase vacation or retirement homes in the area. The combination of the river valley within the hills and steep mountainsides presents a scenic beauty which is a very strong selling point to prospective buyers.

Thus, the river not only provides the opportunity for a number of popular recreational activities, its presence adds to the overall attractiveness of the area. Because the river is one of the major natural resources that attracts tourists to the Mt. Washington Valley, the protection and management of the river in its natural state is of major importance to the economy of the region.

Recreation Resources

The Saco River and its tributaries in New Hampshire are used by thousands of people annually from throughout New England and the Northeast for canoeing, kayaking, rafting, swimming, fishing, hunting, camping and sightseeing. All sections of the river offer a variety of opportunities for water-based recreation and receive varying amounts of usage by those people living near it and by the many who visit this popular recreation destination.

The recreational use of the Saco River extends from mid-April through November, with the heaviest use occurring on weekends and holidays. Recreational use of the river has been increasing dramatically during the past twenty-five years. It was concluded, following an intensive study of river usage on the Saco (Southern Maine Regional Planning Commission, 1983), that the Saco River, between Conway, New

Hampshire and Hiram, Maine was the most heavily used stretch of river for recreation in New England. When asked to describe the most attractive aspect of their experience on the Saco River, nearly 300 river users identified the river's wilderness setting, clean clear water, sandy beaches, and surrounding scenery as the factors that contributed most to their overall experience. Trash, inconsiderate users and crowding at various locations were the concerns of these same users.

The rapid growth in the river usage can be attributed directly to the rise in popularity of canoeing. Nearly eighty-six percent of responses to a Saco River user questionnaire indicated that canoeing was their primary form of recreation while on the Saco River (Southern Maine Regional Planning Commission, 1983).

Depending on the time of year and the section of the river chosen, canoeists of all abilities can find appropriate recreational challenge and enjoyment on the Saco River. In the spring when the water level is moderate to high, the upper section of the Saco River offers one of the most exciting whitewater canoeing stretches in central New England. Between the Gorge at Notchland and the village center of Bartlett are five miles of continuous rapids with occasional drops which require whitewater expertise to navigate. Below Bartlett the rapids are interspersed with quick water and are not as difficult to negotiate. From North Conway to the Maine border, the river is mainly smooth water except for a few sets of rapids between Conway and Center Conway (AMC River Guide, 1989).

The availability of clear, clean water along the Saco River as well as the presence of sandy beaches provide an excellent environment for swimming, tubing and other forms of water play. Swimming occurs in all sections of the river throughout the summer but the heaviest use occurs on weekends at popular access points such as the third iron bridge in Harts Location, the Bartlett Beach, along West Side Road, at the First Bridge in North Conway, at Davis Park in Conway, and the Smith-Eastman Recreation Area in Center Conway.

Campgrounds are located along the Saco River from Crawford Notch State Park to Conway. Both private and publicly owned and operated facilities are available to provide a full spectrum of camping opportunities. Crawford Notch State Park is located along the Saco River in the town of Harts Location. Within the park, facilities for camping and picnicking are provided at the Willey House site. A short

distance downstream the White Mountain National Forest maintains a picnic area called Sawyer Rock Picnic Area.Wilderness camping also occurs within the White Mountain National Forest and on isolated sandbars and on private lands adjoining the river.

There are a number of commercial campgrounds on or adjacent to the Saco River in New Hampshire which provide a full range of camping facilities and amenities. Silver Springs Campground is located in Bartlett, near Sawyer Rock. Glen Ellis Family Campground is in Glen, near the confluence of the Ellis and Saco Rivers. Between North Conway and Conway are three campgrounds, Saco River Camping Area, The Beach Camping Area, and Eastern Slope Camping Area. Saco Bound maintains wilderness campsites at Saco Pines, adjacent to their headquarters in Center Conway. The major activity of Saco Bound is the sale and rental of canoeing equipment, as well as providing a car shuttle service for canoeists, and guided canoe and rafting trips. Other commercial establishments in the area offer similar services.

Recreational fishing for brook trout, rainbow trout and brown trout is a popular activity on the Saco River from April through September. Fishing pressure is greatest on weekends with the largest concentration of fishermen limited to the fly-fishing only section of the Saco River from Humphrey's Ledge pool to Artist Brook and the fly-fishing only section of the Ellis River between the Jackson covered bridge and Goodrich Falls.

Historically, the Saco River was one of the premier trout fishing rivers in the region. Now, the fishing pressure exceeds the reproductive capability of the native populations so overall fishing success is largely dependent on the stocking of hatchery reared brook, brown and rainbow trout. Brook trout and brown trout are stocked in the Saco River, and brook trout are stocked in Saco Lake, the Ellis River, East Branch of the Saco, and Artist Brook. Rte 302 provides good public access both for stocking and fishing. Many tributaries of the Saco River contain native populations of brook trout which provide additional fishing opportunities.

Because Route 302 follows the Saco River for its entire length in New Hampshire, numerous access points exist. The public has access to the upper portion of the river where it flows through White Mountain National Forest lands and Crawford Notch State Park. Canoeists and fishermen typically use bridges over the river as access points. Town

owned properties on the river have been developed to provide recreational access to the river. The Bartlett Town Beach is located near the River Road bridge in Bartlett. The three areas in Conway are: First Bridge Conservation Area in North Conway, Davis Park in Conway, and the Smith-Eastman Recreation Area in Center Conway. Saco Bound has a canoe access at their headquarters in Center Conway.

The increase in the usage of the Saco River has brought problems associated with high visitor use, i.e. trash, human waste disposal, crowding, and conflicts between user groups and land owners. Proper facilities are needed for trash disposal, human waste disposal, early-season camping, parking and canoe access. Informational signs are needed to inform and educate canoeists about the need to respect the rights of fishermen and land owners.

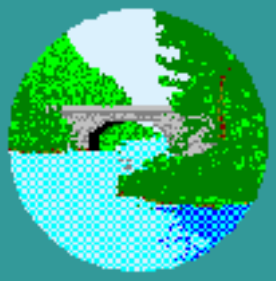
It can be concluded from the above discussion that much of the recreational potential of the Saco River is already being utilized. The challenge is to maintain the quality of the recreational experience for future users.

Scenic Resources

The Saco River exhibits outstanding visual characteristics. The headwater areas lie high within the White Mountains and offer outstanding views of the surrounding mountain ranges and the valleys below. The headwater areas have been described by the U.S. Forest Service, in their Land and Resource Management Plan for the White Mountain National Forest as visually "distinctive".

Along its length the river exhibits a variety of visual characteristics including waterfalls, rapids with rock-strewn bottoms and banks, large clear pools, and slow meandering bends containing sandy bottoms. Enclosing these physical features are a variety of forest types including spruce-fir, mixed northern hardwoods, aspen-paper birch all intermingled with open meadows and fields in a mosaic pattern. The open pastures, orchards, and agricultural fields that adjoin the Saco River in the town of Conway provide outstanding pastoral scenes when combined with historic farmsteads, covered bridges, and the surrounding mountains.

SACO RIVER
CORRIDOR MANAGEMENT PLAN



Back to Contents
Rivers Home

GOALS AND RECOMMENDATIONS

OVERALL GOAL: *To maintain a balance between all the uses of the Saco River so that no single use diminishes the quality of the river for the other uses.*

BACKGROUND: At present the Saco River is used for a variety of purposes. It is habitat for riverine plants, fish, and other animals. It provides drinking water for both wildlife and humans. The water is taken for snowmaking, for agricultural purposes, for watering lawns and golf courses. The river is used for waste assimilation from sewage treatment plants. The river provides an opportunity for recreation: for boating, fishing, and swimming. The attractiveness of the river and the other natural resources of the valley is an important contribution to the region's tourist-based economy. The natural beauty of the river and adjacent lands, and the high quality of its water is appreciated and valued highly by those who live near the river, those who live in the community, and those who come to visit.

The goal is to maintain a balance between all of the river uses so that one use does not infringe unduly upon or compromise the quality of the river for other uses. Regulations which insure the rights of one user group should not infringe unduly upon the rights of other user groups. There needs to be a balance between the use of the river by landowners and the use of the river by the community at large. In addition, when regulations are formulated, the dynamic nature of the river and its natural cyclical changes need to be recognized.

GOAL 1: *To maintain and enhance high water quality.*

BACKGROUND: The Saco River basin is the only river basin in the state of New Hampshire that is currently meeting all of the surface water standards of the federal Clean Water Act. The main stem of the Saco River is rated as class B water, while the portions of some of its tributaries, which are used as community drinking water supplies, are

rated class A. This high water quality is a major characteristic on which the people and the economy of this region depend. The water within the river and its aquifer is the source of drinking water for the community, it provides recreation opportunities for both residents and visitors, and contributes to the scenic beauty of the area. Maintaining the high water quality of the river is important for the health and welfare of the residents, as well as being an integral component supporting the tourist-based economy of the region.

Potential threats to the high water quality of the Saco River include:

1. Erosion and sedimentation due to land disturbance in or near the river.

2. Effluent from septic systems and sewage treatment facilities and other potential contaminants that are discharged to the surface water or groundwater in and around the Saco River.

3. Land use practices which allow contaminants such as soil, pesticides or fertilizers to enter the river.

4. Road deicing agents applied to private and public roads near the river or in snow collected elsewhere and dumped near the river.

5. The discharge of stormwater from existing and new facilities to the surface waters of the Saco River or its tributaries.

6. Irresponsible disposal of trash and human waste by recreational users of the river.

RECOMMENDATIONS: Even though the overall goal of the corridor management plan is to maintain a multiple use river, all uses should be conducted in ways which do not degrade the high water quality in the Saco River. The following recommendations are made to ensure that the current high water quality of the Saco River will be maintained.

1. Encourage and promote the strict adherence to and enforcement of existing local, state and federal water quality regulations for maintaining and enhancing the current high water quality of the Saco River.

2. Encourage short- and long-term erosion control practices and techniques throughout the river corridor to minimize the introduction of silt or other materials to the river which would degrade its water quality.

3. Support the construction and maintenance of effective waste water treatment facilities which protect and enhance the water quality of the groundwater aquifers, and at the same time do not degrade the high water quality of the river.

4. Encourage land use practices (agriculture, timber harvesting, etc.) that minimize contamination of the river and its aquifer.

5. Address existing conditions that currently degrade the water quality. Work with owners and government agencies to reach satisfactory solutions that improve the overall water quality.

6. Encourage projects that improve the overall water quality of the river and its aquifer.

GOAL 2: *To enhance the scenic appearance of the river.*

BACKGROUND: The major industry of the Mt. Washington Valley region through which the Saco River flows is tourism. Tourists are attracted to the region because of its natural beauty, and for the recreational opportunities made possible by the natural features of the area. To maintain the quality of the experience of living or visiting the Saco River valley, the scenic appearance of the region can not be allowed to be degraded.

When considering the scenic appearance of the river, both the viewpoint of the riparian landowner and the viewpoint of the river traveler should be considered. Both have the responsibility to respect the appearance of the river and to ensure that their actions do not result in a reduction in the scenic quality of the river.

RECOMMENDATIONS:

1. Work with the individual towns to establish appropriate and consistent setbacks from the Saco River for roads, buildings and structures.

2. Work with the individual towns to establish sufficient buffer zones along the Saco River in which vegetative cover would be maintained.

3. Streambank and riparian projects within the vegetated buffer zone should maintain as natural an appearance as possible.

4. River Clean-up Days should be promoted and sponsored on a regular basis.

GOAL 3: *To maintain and enhance recreational opportunities along the Saco River while recognizing landowner concerns.*

BACKGROUND: Many recreational opportunities are available on all sections of the Saco River corridor such as canoeing, kayaking, tubing, hiking, swimming, fishing, hunting, camping, and sightseeing. Some of these activities occur at certain times of the year in certain areas while others occur year-round almost everywhere on the river. The heaviest use of the Saco River and it's corridor occurs in the summer when canoeing and tubing are the most popular activities.

Both public lands and private recreational facilities exist along the Saco River. Parts of the upper river are in Crawford Notch State Park and the White Mountain National Forest. A number of commercial campgrounds and canoe liveries are located along the Saco River and cater to the recreationalist. However, the majority of the land in the river corridor is under private ownership.

The use of the Saco River for recreation is not limited to the public lands along the river. Boating, for example, occurs along the full length of the river, which brings boaters adjacent to private lands. As long as recreationalists act responsibly, respecting private landowners rights and privacy, landowners and recreationalists can coexist

harmoniously. Unfortunately, misuse of private lands has occurred in the form of littering, erosion, unreasonable noise, trespassing, vandalism, and unauthorized camping.

Currently public access to the river is limited. Many popular access points are actually privately owned. Misuse may result in the loss of the privilege to use these areas. The southern part of the Saco River has adequate public access by vehicle for the launching of watercraft at a) the Smith-Eastman Recreation Area in Center Conway, b) Davis Park at the covered bridge in Conway, and c) the First Bridge Conservation Area at the River Road bridge in North Conway.

Above this point there is less guaranteed public access by vehicles for the launching of craft d) from West Side Road near Humphrey's Ledge, e) in Glen - Route 302 bridge is used but is not an official access, and f) in Bartlett - River Street bridge.

There is no good public access to the river above Bartlett village, and especially above Sawyer River. This part of the river has good spring whitewater paddling potential.

A secondary problem for paddling is river blockage from fallen trees and flotsam. This interrupts continuous canoeing and kayaking on the river.

Most of the land along the river between the normally used vehicle access points is currently in private ownership. These sections of river are mostly undeveloped and could offer increased recreational opportunities for fishermen, cross-country skiers, hikers, paddlers and nature enthusiasts, through private landowner participation strategies, such as easements, rights of way, etc.

RECOMMENDATIONS: There should be sufficient access for the public along the length of the river to support the variety of recreational opportunities available. This access should be provided without infringing upon the rights of the private landowners.

1. Study the need for access at locations along the river that presently have none for use by all of the recreational activities. Potential sites that should be considered for access are: a) the stretch of river between Sawyer River and Davis path, b) the River Street bridge area in

Bartlett, and c) the Route 302 bridge area in Glen.

2. Study the feasibility of establishing a non-motorized access trail system for fishermen, cross-country skiers, etc. within the Saco River corridor, using easements and other private landowner participation strategies. Provide information concerning the protection from liability for landowners who allow the public access to their land for recreational use, to encourage landowners to provide public access.

3. Promote education and provide information regarding the proper use and care of the river and the abutting land.

a. Survey the landowners to identify existing problems related to river users.

b. Develop brochures, signs, and/or other means of educating the public on responsible river use.

c. Sponsor regular river clean-up days.

4. Provide a map of the river indicating public or authorized access locations, picnic sites, camping areas, waste receptacle locations, and any other information to help promote responsible use of the river.

GOAL 4: *To promote appropriate streambank stabilization practices which allow landowners to protect their interests without degrading the scenic appearance and quality of the Saco River.*

BACKGROUND: A river is a dynamic system. Not only is the water constantly moving, but the river itself is constantly changing its course within its valley. The force of the water flowing downhill causes the water to remove material from the outside banks of bends and carry it downstream. Where the water is moving at a slower velocity, the removed material can no longer be carried, so it is deposited. This

cycle of erosion and deposition, and gradual movement of river channels is a natural process and inherent in the dynamics of every river.

Throughout history human communities have been established along rivers. Buildings are erected near the rivers, roads and railroads are built along the rivers, bridges are built over the rivers, and crops are grown in the rich floodplain soils along the rivers. When the natural dynamics of the river cause these constructions to be threatened, the landowners want to protect their investment with further construction to control the natural process of the river. The banks of the river are fortified to prevent erosion by the force of the water.

Streambank stabilization projects raise a number of concerns including the following.

1. When the river is prevented from dissipating some of its energy through erosion in one place, the energy is not removed, but rather the river has the potential to erode with greater force somewhere else. The situation where one stabilization project creates the need for another project is not desirable.

2. Projects which change the natural dynamics of the river will have effects on the structure of the streambed. These changes may alter the value of the river for fish and wildlife.

3. Preserving the natural beauty of the area is of vital importance to the maintenance of the region's tourist-based economy. The appearance of any streambank stabilization project must be compatible with its natural surroundings.

RECOMMENDATIONS:

1. Set-backs should be established which prevent roads, buildings, and other developments from being built where they could be threatened by the changing course of the river.

2. Guidelines should be adopted which regulate streambank stabilization projects. The following provisions should be included in the guidelines.

a. Each project should be considered on an individual basis.

b. Both the beneficial and negative effects of the project on river values should be considered as well as the potential gains and losses if the project is not implemented.

c. The cost effectiveness of the project should be considered, with all values, not just financial, being included.

d. The secondary effects of the project should be considered including (1) erosion, deposition, and channel alteration in other parts of the river that the proposed project could cause, (2) the effects on fisheries and wildlife, and (3) the effects on navigation.

e. The appearance of the project should be consistent with the natural surroundings.

3. The use and management of vegetation for streambank stabilization should be encouraged.

GOAL 5: *To maintain and enhance instream flows consistent with multiple use resource values.*

BACKGROUND: The Saco River is used for many purposes which require an abundant flow of water. Recreational activities such as swimming and boating, and the maintenance of fish and wildlife habitat are dependent on a sufficient flow of clean water. The use of the river for waste assimilation requires enough natural flow to dilute the volume of waste added so that it does not become a polluting factor. Water withdrawal directly from the river for irrigation or snowmaking can potentially reduce the volume of water in the river available for other uses.

Under the New Hampshire Rivers Management and Protection

Program, the Commissioner of DES shall adopt rules specifying the standards, criteria and procedures by which a protected instream flow level shall be established and enforced for each designated river.

RECOMMENDATIONS: When the regulations establishing the protected instream flow for the Saco River are determined, legitimate multiple uses of the river, both as a natural and economic resource, shall be given consideration. These uses will include, but are not necessarily limited to the following: scenic, boating, fishery and aquatic habitat, swimming, hunting, waste assimilation, snowmaking, water supply, agricultural and other irrigation purposes. Pre-existing use by riparian owners should be given precedence.

GOAL 6: *To maintain and protect the variety of wildlife habitats within the Saco River corridor.*

BACKGROUND: The majority of the watershed of the Saco River is forestland, with 80% of the watershed within the White Mountain National Forest. Land use within the National Forest is governed by the Forest Management Plan, which gives high priority to maintaining habitats for a variety of wildlife species. Most of the land in the river corridor is privately owned. Even though the region is sparsely populated and considerable open space exists, there is no overall plan, such as the Forest Plan, governing the land use on the non-Forest Service land ensuring that a variety of wildlife habitats will be maintained.

RECOMMENDATIONS:

1. A buffer zone of undisturbed vegetation along the river is desirable and should be encouraged.

2. Wetlands and other wildlife habitat along the river should be conserved wherever possible.

3. A variety of riverine conditions in the river corridor should be maintained to provide suitable habitat for fish and other aquatic species.

4. Projects to improve and enhance fish habitat should be encouraged, provided that they do not cause a negative impact on other river values.

5. Projects proposed for the river corridor should be reviewed to ensure that they will not cause disturbance, habitat deterioration, or loss of habitat for federal or state listed threatened, endangered, or sensitive floral or faunal species.

GOAL 7: *To protect and enhance cultural, historical, and archaeological resources.*

BACKGROUND: The Saco River has provided a natural travel way since early Indian times. The valley and floodplain have been the site of many human settlements. Preserving what evidence is left of these ancient settlements as well as unique elements from more recent history permits lessons to be learned from the past.

RECOMMENDATIONS:

1. Sites of known cultural significance should be protected. If a site is not already listed on the National Register of Historic Places, support should be given for application for its inclusion.

2. Projects proposed for the river corridor should be reviewed to ensure that they will not disturb or degrade sites of historical or archaeological importance.

GOAL 8: *To review and summarize regulations relating to the Saco River.*

BACKGROUND: There are multiple tiers of governing bodies developing regulations affecting activities in the river corridor.

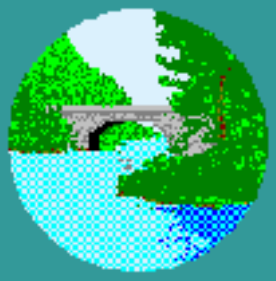
RECOMMENDATIONS:

1. Summarize existing regulations.

2. Review proposed bills relating to the Saco River.

Top of Page

SACO RIVER
CORRIDOR MANAGEMENT PLAN



Back to Contents
Rivers Home

INTRODUCTION

Statement of Purpose

The New Hampshire Rivers Management and Protection Program (RSA 483), enacted in 1990, included the Saco River as one of the state's rivers to be managed and protected. The legislation stipulates that the Commissioner of Environmental Services appoint a local river management advisory committee, to consist of members representing a broad range of river interests. The duties of the committee include: (1) advising the Commissioner and the local municipalities on matters pertaining to the river, and projects that would affect the resource values and characteristics of the river, and (2) developing a river corridor management plan.

The Saco River Local Management Advisory Committee has developed this Corridor Management Plan to function as an overall guide for maintaining and enhancing the resources of the Saco River corridor. The Corridor Management Plan describes the valuable resources and characteristics of the Saco River corridor, identifies issues of concern, delineates conceptual goals for managing these resources and lists recommended actions for achieving these goals.

Definition of the River Corridor

The Saco River Corridor is defined as the river and the land area located within a distance of 1320 feet (1/4 mile) of the normal high water mark or the landward extent of the 100 year floodplain as designated by the Federal Emergency Management Agency, whichever is larger.

Overview of the Saco River and its Resources

The Saco River originates in Saco Lake at the height of land in Crawford Notch on the eastern border of the town of Carroll. It flows down through Crawford Notch, passes through the towns of Harts Location, Bartlett and Conway, and then enters Maine at Fryeburg. Over the 40 river miles in New Hampshire, the Saco River drops almost 1500 feet in elevation, with three quarters of that drop occurring in the first 12 miles. At first the Saco River is

a small stream tumbling over rocks in the steep-sided valley of Crawford Notch. In Bartlett the stream gradient decreases, and the corridor widens as the 100 year floodplain increases beyond the half mile minimum width. By the time the river reaches Conway, it is meandering smoothly in a broad floodplain with the width of the corridor increasing to over 2 miles at the Maine border.

The drainage basin of the Saco River upstream from the New Hampshire-Maine border is approximately 427 square miles, of which 80% is within the White Mountain National Forest. The land in the river corridor is privately owned except for approximately 9 miles in Crawford Notch State Park, and a short distance below that in the White Mountain National Forest. Much of the land in the corridor is undeveloped with land use being predominantly forestry and agriculture with scattered residences. The town centers are small, located near, but not directly centered on the river.

The Saco River has maintained its natural beauty. It is a free-flowing river with no hydroelectric facilities, much of its watershed is undeveloped, and it is located in a rugged mountainous setting. The water is clear and clean, with few potential sources of pollution. The river and its corridor contain a variety of wildlife habitats and species, including a number of threatened or endangered plants and animals.

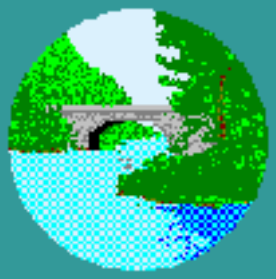
A number of recreational opportunities are provided by the Saco River and its corridor. Boating is very popular, starting with whitewater canoeing on the upper sections in the spring and continuing with flatwater float trips on the lower sections. The Saco River provides opportunities for fishing, with fish populations supplemented by stocking. Other recreational activities include swimming, camping, hiking and hunting.

Tourism is a major industry of the Mt. Washington Valley, the region through which the Saco River flows. The river, the valley and the mountains attract many sightseers to the area. With its high water quality, natural beauty, and recreational potential, the Saco River is a significant asset for the local economy.

The communities along the Saco River appreciate and place a high value on the resources provided by the Saco River. It is important to everyone that the high quality of the Saco River and its resources be maintained.

Top of Page

SACO RIVER
CORRIDOR MANAGEMENT PLAN



Back to Contents
Rivers Home

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